

UNIVERSITY OF CALIFORNIA
TOBACCO-RELATED DISEASE RESEARCH PROGRAM
PROGRESS REPORT

ABSTRACT OF RESEARCH RESULTS

AWARD # RT-134 AWARD PERIOD 07/01/90-06/30/91PRINCIPAL INVESTIGATOR Ronald E. Rasmussen, Ph.DINSTITUTION University of California, IrvineTITLE OF PROJECT ENVIRONMENTAL TOBACCO SMOKE AND LUNG DEVELOPMENT

Please summarize, in language understandable by an educated layman, the objective of this project and the significant findings resulting from the work. Limit the abstract to a space 6" by 5.5".

The goal of this project is to determine the effects of environmental tobacco smoke (ETS) in the developing lung. The rationale for the study is that young children may be exposed to relatively high indoor concentrations of tobacco smoke and possibly other pollutants. An animal model, the juvenile ferret, is being used in this study. The lung of this species resembles that of the human more than do the lungs of other commonly used laboratory animals. The ferrets are being exposed to ETS acutely or chronically during development, and the effects on lung structure quantified by microscopy of tissue sections. In the first year of this study cigarette smoking machines, exposure apparatus and smoke generation and measurement methods were installed. Acute exposure dose-response experiments (1 hr/day, 3 days, 30-80 mg smoke particles/m³) with 4-week-old kits indicated no immediate severe effects. Total numbers of cells recovered in lung washings were slightly increased and microscopic examination indicated increased cell proliferation in the smoke exposed animals. Experiments involving longer exposure to higher smoke concentrations have been completed and tissue samples are being analyzed. Tentative conclusions are (1) the juvenile ferret tolerates the handling and smoke exposure methods very well and is a useful species for the study of effects of air pollutants in the lung; (2) acute effects of exposure to ETS are not severe, but they can be detected and quantified. The major goal for the second year will be to determine the effects of daily exposure to ETS during the period of development from 5 weeks to 20 weeks of age.

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OTHER SUPPORT

AWARD # RT-134 AWARD PERIOD 07/01/90-06/30/91
PRINCIPAL INVESTIGATOR Ronald E. Rasmussen, Ph.D.
TITLE OF PROJECT ENVIRONMENTAL TOBACCO SMOKE AND LUNG DEVELOPMENT

NHLBI/NIH 1 RO1 HL/ES 44523. Juvenile ferret lung: Toxicological model for children. 01 July 90 through 30 June 93. Total direct cost: \$386019. 50% Time. This project is a study of the effects of NO₂ on the developing lung in the ferret. Although the same species and methods are used, the project does not overlap with the present application because a different toxicant is being studied.

Applications Pending.

California Air Resources Board. "Studies to Determine the Long-Term Health Effects of Acidic Atmospheres". (██████████, P.I.). Budget and start date under negotiation. 5% Time. This project involves chronic exposure of rats to mixtures of ozone and HNO₂. Dr. Rasmussen's activities would include advising on lung pathology and morphometric analyses. It is unrelated to the present application. When and if the project is begun, Dr. Rasmussen's commitment to currently funded projects will be reduced proportionately.

NIEHS. "QUANTITATIVE MORPHOMETRY OF METAL TOXICITY IN THE LUNG". P.I.: R. E. Rasmussen, PhD. 30% Time. Inclusive dates: 04/01/92-03/31/95. Approx. total direct costs: \$450,000. The goal of this project is to determine the dose-response relationships for metal-induced alterations in the developing and young adult rat lung. Cadmium will be administered by inhalation of a sized particulate prepared in a pilot-scale rotary kiln incinerator. If this project is funded, the P.I.'s commitment to currently funded projects will be reduced proportionately.

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CHANGES IN KEY PERSONNEL

AWARD # RT-134 AWARD PERIOD 07/01/90-06/30/91PRINCIPAL INVESTIGATOR Ronald E. Rasmussen, Ph.D.TITLE OF PROJECT ENVIRONMENTAL TOBACCO SMOKE AND LUNG DEVELOPMENTNO CHANGES!

1. Person named in the grant application:

Name	Title	% Time
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Changed to:

Name	Title	% Time
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2. Person named in the grant application:

Name	Title	% Time
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3. Person named in the grant application:

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Use additional pages if necessary

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PUBLICATIONS

AWARD # RT-134 AWARD PERIOD 07/01/90-06/30/90
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List publications which acknowledge support from this program; listings should include the author(s), title, journal or book name, year of publication, volume, and inclusive page numbers. Attach reprints.

None

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